

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

HAYNES INTERNATIONAL, INC.,	)	
	)	
Plaintiff,	)	Civil Action No. 04-197(E)
	)	
v.	)	JURY TRIAL DEMANDED
	)	
ELECTRALLOY, a Division of G.O.	)	
CARLSON, INC.,	)	Judge Cohill
	)	
Defendant.	)	

**DEFENDANT'S OPPOSING APPENDIX OF EXHIBITS IN OPPOSITION TO  
PLAINTIFF'S MOTION FOR PARTIAL SUMMARY JUDGMENT**

<b>EXHIBIT</b>	<b>DOCUMENT</b>
A	Declaration of Eugene Hynes

## **EXHIBIT A**

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

HAYNES INTERNATIONAL, INC., a Delaware corporation	)	
	)	
Plaintiff,	)	Civil Action No. 04-197(E)
	)	
v.	)	JURY TRIAL DEMANDED
	)	
ELECTRALLOY, a Division of G.O. CARLSON, INC.,	)	
a. Pennsylvania corporation	)	Judge Cohill
	)	
Defendant.	)	

**DECLARATION OF EUGENE HYNES**

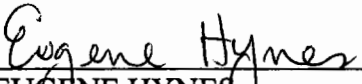
I, Eugene Hynes, declare as follows:

1. I am a United States citizen and resident of Pennsylvania.
2. I am Electralloy's Senior Programmer, and have worked for Electralloy since 1976. As a part of my job responsibilities, I am responsible for the content and maintenance of Electralloy's website (www.electralloy.com). I personally am responsible for loading content onto Electralloy's website and updating the site.
3. Within the body of the "Capabilities" section of Electralloy's website is a two-page sheet listing Electralloy's "Alloys and Capabilities." See pp. 2 and 3 from Electralloy's website, attached hereto at Tab 1. This two-page capabilities sheet is dated August 28, 2001. See same pages. Under the Electrode Slag Remelt (ESR) section of this capabilities sheet, "EC22" is listed as one of the alloys Electralloy is capable of producing. See p. 3 of Tab 1. Those viewing Electralloy's website may also download a PDF version of the same two-page capabilities sheet. See pp. 2-3 of Tab 1.
4. The content of the "Capabilities" section of Electralloy's website, including the two-page capabilities sheet referencing "EC22" was last updated April 03, 2003. See p. 4 at Tab 1 indicating when the website section was last modified.
5. Whenever I update portions of Electralloy's website, I also update the information at the bottom of the section indicating the last modification of that portion of the website.
6. Electralloy's website also contains a section entitled, "Data Bulletins." Within this section viewers may click on downloadable, PDF versions of various Electralloy bulletins. See pp. 1-2 attached hereto at Tab 2.

7. One of the bulletins Electralloy has posted on its website is entitled, "Nickel-Based High Performance Alloy EC22 Product Data Bulletin." See same at p. 1.
8. This "Nickel-Based High Performance Alloy EC22 Product Data Bulletin" is dated August 1, 2003, and provides specifications regarding Electralloy's EC22. See Bulletin, at pp. 3 and 4 of Tab 2, and p. 4 for date of Bulletin.
9. The Data Bulletins section of Electralloy's website was last updated on August 4, 2003, therefore, the EC22 product bulletin has been available on Electralloy's website at least since that date. See p. 2 of Tab 2 showing date of last modification of the Data Bulletins section of Electralloy's website.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 6 day of October 2005.

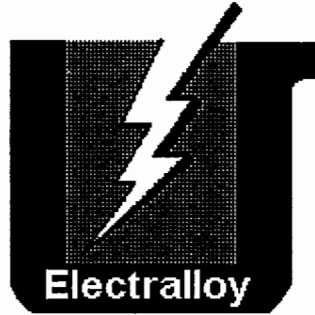
  
EUGENE HYNES

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 6 day of October 2005.

Eugene Hynes  
EUGENE HYNES

## TAB 1



# Capabilities

[Home](#)[Products](#)[Contact](#)

## !!!!!! Electralloy is the exclusive

Electralloy specializes in the manufacture of Nickel Alloys, Copper-Nickel, Stainless Steel, High Temperature and Tool Steel Ingot, Billet, Bar and Remelt Pigs. Electralloy utilizes its heat size of 40,000# to 60,000# and production capability to produce tailored grades and sizes that larger mills frequently ignore.

A wide variety of mold sizes permit the production of ingots for wrought alloys from 13 sq. x 1,900# to 63" round x 60,000# and electrodes from 14" round x 4,800# to 39" round x 60,000#. Remelt material is produced in either 15# pigs or cut weight mulds from round electrodes molds.

The grades that Electralloy currently produces include: Ni-Al Bronzes, Nickel Alloys, Copper/Nickel Alloys, the entire range of austenitic, martensitic and ferritic stainless steels, duplex stainless steels, precipitation hardened stainless steel and Nitronic Family of steels.

Electralloy has an extensive inventory of stainless steel bar, billet and remelt pigs. Billet produced is supplied from 4" RCS to 34" RCS while bar is stocked in ranges from 5" round through 24" round. Free machining 303, 304/304L, 316/316L and 416 bars and billets are produced and marketed under the SPEED-E-MAC® tradename at no additional cost.

Electralloy offers a complete custom melting service for the reclamation of customers' in-house and purchased scrap. The resultant material can be made to a commercial specification or to special alloy chemistries.

**ELECTRALLOY**

G. O. CARLSON Inc. Co.

**AIR MELT  
INGOT - BAR - BILLET  
ALLOYS AND CAPABILITIES****AUSTENITIC STAINLESS STEELS**

303	310/310S	330	Nitronic® 30
304/304L	316/316L	347	Nitronic® 32
304/304H	316N	347/347H	Nitronic® 33
304N	317L	904L	Nitronic® 40
308L	321	C20Plus	Nitronic® 50
309/309S	321/321H	F-44	Nitronic® 60

**PRECIPITATION HARDENING**

15-5	17-4
16-5	EC450

**FERRITIC**

405
430

**DUPLEX**

2205
F-55 = UNS S32760
EC255 = UNS S32550
EC25540 (EC255 High Pren.)

**MARTENSITIC**

403	440C
410	EC125
418	F6NM
420	P8
422	13Cr4Ni

**NICKEL ALLOYS**

200	400	719
201	600	800
276	601	800H
	625	HX

**LOW EXPANSION ALLOYS****COPPER NICKEL**

C71500 (70/30 Cu-Ni)
C70600 (60/40 Cu-Ni)
NI Al Bronze

**E-36 E-42****STRUCTURAL  
HY90 HY100****TOOL STEELS**

A-2	D-2	O-1
A-8	H-11	P-1
	H-13	

Alloys not listed can be made by request.

**PRODUCTION CAPABILITIES**

<i>Pigs</i>	15# Pigs - 45,000# Heat
<i>Ingots</i>	13" Sq. to 63" Fluted Round - 1900# to 62,000#
<i>Bars</i>	4" Round to 26" Round
<i>Billet</i>	4" Round or RCS to 34" RCS
<i>Slabs</i>	4" x 15" to 10" x 42"
<i>Nitronic Coil Rod</i>	.219" RD. to 1" RD. <i>Nitronic 50W &amp; 60W Weld Wire</i>

**Contact Electralloy Sales:**

Telephone #: 800-459-7273 or 814-678-4100 Fax #: 814-678-4172 or 814-677-1342

e-mail: SALES@ELECTRALLOY.com Web Site: www.ELECTRALLOY.com

175 Main St. - Oil City, PA 16301

Nitronic® = Registered Trademark of AK Steel

8/28/2001

[Click Here To View or Download the Airmelt Capabilities In PDF Format](http://www.electralloy.com/more_of_electralloy_capabilities.htm)



**ELECTRALLOY**

a G. O. CARLSON Inc. Co.



**REMELT**  
**INGOT - BAR - BILLET**  
**ALLOYS AND CAPABILITIES**

**VACUUM ARC REMELT (VAR)**

304/304L	15-5	9310
316/316L	17-4	H-11
403	A286	H-13
410	718	D6AC
410Cb	300 M	Jetheta M152
422	4330	HP 9-4-20
440C	4340	HP 9-4-30
EC450	321	625

**VIM / VAR**

13-8	625
718	A286
455	Managing 200,250 & 300

**ELECTRODE SLAG REMELT (ESR)**

304/304L	600	EC255	N-155
316/316L	600 Cb	EC25540	188
316LH	617	F-55	L805
321	625	HX	H13
347	680	HG3	Nitronics®
403/410	706	C276	F44
410Cb	718	EC22	F6NM
420	825	15-5	EC400
422	C20+	17-4	ECK500
Greek Ascology	926 Mo	EC450	NIAI Bronze

Alloys not listed can be made by request.

**PRODUCTION CAPABILITIES**

<b>Bars</b>	.5" Rd. to 3.5" Rd. and 4" Rd. to 26" Rd.
<b>Billet</b>	4" Round or RCS to 34" RCS
<b>Slabs</b>	4" x 15" to 10" x 42"
<b>Ingot</b>	VAR Crucibles 20, 24, 30, 33, 40" Rd.
<b>Ingot</b>	ESR Crucibles 12 x 42, 20", 30", 36", 40" Rd.

**Contact Electralloy Sales:**

Telephone: 800-458-7273 or 814-678-4100 Fax: 814-678-4172 or 814-677-1342

e-mail: SALES@ELECTRALLOY.com

Web Site: www.ELECTRALLOY.com

175 Main St. - Oil City, PA 16301

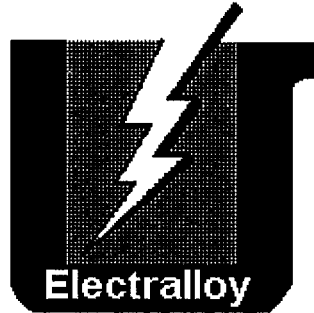
Nitronics® = Registered Trademark of AK Steel

8/28/2001

[Click Here To View or Download the Remelt Capabilities In PDF Format](http://www.electralloy.com/more%20of%20electralloy%20capabilities.htm)

Send mail to [bhynes@electralloy.com](mailto:bhynes@electralloy.com) with questions or comments about this web site.  
Last modified: April 03, 2003

## TAB 2



# Data Bulletins



**!!!!!! Electralloy is the exclusive**

Click Here To View or Download the Nitronic 50 Product Data Bulletin E-50 In PDF Format (Over 3 Mb)

Click Here To View or Download the Nitronic 60 Product Data Bulletin E-60 In PDF Format (Over 4 Mb)

Click Here To View or Download the Nickel-Based High Performance Alloy EC625 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel-Based High Performance Alloy EC22 Product Data Bulletin In PDF Format

Click Here To View or Download the High Performance Alloy A-286 Product Data Bulletin In PDF Format

Click Here To View or Download the High Performance Alloy TOOLWARE 718<sup>®</sup> Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel-Copper Alloy EC400 & ECR405 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel-Copper-Aluminum Alloy ECK500 Product Data

Bulletin In PDF Format

Click Here To View or Download the Nickel-Aluminum Bronze Product Data Bulletin In PDF Format

Click Here To View or Download the Superaustenitic 6% Mo Stainless Alloy 926 Mo Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel Alloy EC200/201 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel Alloy EC600 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel Base Alloy ECHX Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel Base Alloy EC276 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel-Iron-Chromium-Silicon Alloy EC330 Product Data Bulletin In PDF Format

Click Here To View or Download the Nickel-Iron-Chromium Alloy EC800/800H/800AT Alloy Product Data Bulletin In PDF Format

Click Here To View or Download the 90/10 Copper-Nickel Alloy EC70600 Product Data Bulletin In PDF Format

Click Here To View or Download the 70/30 Copper-Nickel Alloy EC71500 Product Data Bulletin In PDF Format

Send mail to [bhynes@electralloy.com](mailto:bhynes@electralloy.com) with questions or comments about this web site.

Last modified: August 04, 2003

# ELECTRALLOY

a G. O. CARLSON Inc. Co.



## Nickel-Based High Performance Alloy **EC22** (UNS N06022)

**Electralloy's EC22 is a solution strengthened, nickel-chromium-molybdenum high performance alloy providing excellent resistance to pitting, crevice corrosion and stress-corrosion cracking. EC22 also has excellent resistance in both reducing and oxidizing conditions.**

### **Chemical Composition (Nominal Analysis, weight percent)**

Carbon ( <i>max.</i> ) .....	0.015	Cobalt ( <i>max.</i> ) .....	2.50
Manganese ( <i>max.</i> ) .....	0.50	Sulfur ( <i>max.</i> ) .....	0.010
Silicon ( <i>max.</i> ) .....	0.08	Tungsten .....	2.50 / 3.50
Chromium .....	20.00 / 22.50	Iron .....	2.00 / 6.00
Molybdenum .....	12.50 / 14.50	Nickel .....	Balance
Vanadium ( <i>max.</i> ) .....	0.35	Phosphorus ( <i>max.</i> ) .....	0.020
Copper ( <i>max.</i> ) .....	0.50		

### **TYPICAL APPLICATIONS**

The balance of low carbon, nickel, molybdenum, and chromium allows Electralloy's EC22 to be used in a variety of applications. EC22 is used in highly corrosive environments in petrochemical, pulp and paper, oil and gas, marine, and chemical processing industries.

EC22 specifications include the following:

ASTM B472  
ASTM B564  
NACE MR0175

Weld Wire – ANSI / AWS A5.14 / A5.14M – 97 (AWS Classification ERNiCrMo –10)

EC 22 is available in a variety of sizes and forms, including ingot, billet, bar, coil rod, and weld wire.

*The information and data contained in this Product Data sheet are intended for general information and do not constitute any warranty, expressed or implied, of suitability for any applications or design.*

# Nickel-Based High Performance Alloy **EC22** (UNS N06022)

## PHYSICAL PROPERTIES

**Melting Temperature:** 2475°F to 2550°F (1367°C to 1399°C)

**Density:** 0.314 lb./in.<sup>3</sup> (8.69 gm/cm<sup>3</sup>)

**Specific Heat:** (@ 126°F) 0.099 Btu/lb./°F

**Electrical Resistivity:** (@ 75°F) 44.8 microhm-in.

## Modulus of Elasticity (E)

Temperature		Tension	
°F	°C	10 <sup>6</sup> psi	10 <sup>3</sup> MPa
70	21	29.9	206
1800	982	21.1	145

## Coefficient of Thermal Expansion

Temperature		
°F	°C	in./in./°F
75 to 200	24 to 94	6.9 x 10 <sup>-6</sup>
75 to 800	24 to 427	7.4 x 10 <sup>-6</sup>
75 to 1600	24 to 870	8.8 x 10 <sup>-6</sup>

## Thermal Conductivity

Temperature		
°F	°C	Btu/ft <sup>2</sup> /ft./hr./°F
118	48	5.8
572	300	9
932	500	12.3

## MECHANICAL PROPERTIES

### Tensile Properties (2050°F / Water Quench)

	UTS (ksi)	.2% YS (ksi)	%EL	%RA	HARD. Rb
ASTM B574	100	45	45		
TYPICAL EC 22	108	53	63	75	86

## HEAT TREATMENT

EC22 can be solution heat treated by heating to between 2025°F and 2100°F (1120°C - 1150°C) and cooled rapidly in water or air.

## HOT WORKING

Recommended hot working temperature range for this alloy is 2200°F down to 1750°F (1205°C to 955°C). The recommended ingot breakdown temperature is 2200°F.

## WELDING

EC22 can be readily welded using conventional methods such as gas tungsten arc (GTAW), gas metal arc (GMAW), and shielded metal arc (SMAW). Various resistance welding methods can also be used. EC22 does not need a post-weld heat treatment to restore corrosion resistance. Oxyacetylene welding should not be used because it causes carbon pick-up with resulting loss of corrosion resistance.

## MACHINING

EC22 can be machined using conventional techniques and equipment similar to those used for 300 series austenitic stainless steels. Since this alloy work hardens, lower speeds are required. Either carbide or high-speed tooling is recommended. Heavy, constant feeds must be maintained to prevent glazing, which causes low tool life and breakage. Water based coolants can be used.

## CORROSION RESISTANCE

Electralloy EC22 exhibits outstanding resistance to crevice corrosion, pitting, and stress-corrosion cracking. This alloy also has excellent resistance to both reducing and oxidizing conditions.

Typical results	CORROSION RATE (mils per year)
ASTM G28 METHOD A	18.96 mpy
ASTM G28 METHOD B	6.55 mpy